

REMARKS

Claim 7 has been amended. Claim 9 has been canceled. No new matter has been added. Claims 1, 3-4, 6-7, and 10-11 are pending.

Claim 7 has been amended to incorporate the elements of claim 9, which has been canceled. Since claims 7 and 9 were previously examined and subject to the same grounds of rejection, it is respectfully submitted that this amendment does not necessitate any additional search or examination. Therefore, entry of the amendment is solicited.

Claim Rejections - 35 USC § 102

The Examiner rejected claims 7 and 9 under 35 USC § 102(b) as anticipated by *Hida* et al. (US 5,936,695). Claim 7 has been amended to incorporate the elements of claim 9, which has been canceled. The rejection of claim 7 is respectfully traversed.

The fundamental principles of claim rejections under 35 USC § 102 are stated in MPEP §2131 as follows:

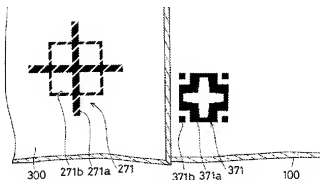
“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Specifically, the rejection of independent claim 7 is traversed on the grounds that *Hida* does not expressly or inherently describe the element “the specified figure consists of two lines that extend in parallel with one edge of the liquid crystal encapsulation opening, and are arranged between the start point and the end point of the sealing material”.

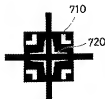
Hida describes (col. 2, lines 36-48) a liquid crystal display device comprising first and second substrates, liquid crystal material held in a gap formed between the first and second substrates, and a

layer of sealing material disposed in the gap, the sealing material provided with one or more opening regions for injecting the liquid crystal material. *Hida* further describes that alignment marks are disposed within the opening regions on both substrates, and that the alignment marks may be used to align the first and second substrates when the liquid crystal device is assembled.

The alignment marks used by *Hida* to align the the first and second substrates are shown in Figure 5 and described at col. 6, lines 46-60. Figure 5 is reproduced in part below. Specifically, the alignment mark 271 on one substrate 300 consists of a cross 271a overlaid with a square 271b. The alignment mark 371 on the second substrate 100 consists of a clear cross 371a and four squares 371b that “define the four corners of an imaginary square”.

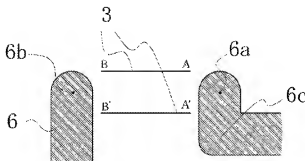


When superimposed, the alignment marks 271, 371 facilitate precise alignment of the substrates 100, 300 on two orthogonal axes. Figure 6 of *Hida*, reproduced in part below, shows the superimposed alignment marks.



Claim 7 recites that a seal material is deposited from a start point to an end point at predetermined positions with respect to a specified figure. Claim 7 further recites that “the specified figure consists of two lines that extend in parallel with one edge of the liquid crystal encapsulation opening, and are arranged between the start point and the end point of the sealing material”.

Section 2111.03 of the MPEP states that the transitional phrase “consisting of” excludes any element, step, or ingredient not specified in the claim. Section 2111.03 of the MPEP further states “when the phrase ‘consists of’ appears in a clause of the body of a claim, rather than immediately following the preamble, it limits (only) the elements set forth in that clause ...” When the phrase “consists of” is properly interpreted per the MPEP, claim 7 recites that the specified figure is exactly two parallel lines positioned as described, and excludes any other elements or features in the alignment marks. Figure 3 of the application, reproduced in part below, shows an example of a specified figure 3 that is consistent with the recitation of claim 7.



Clearly, *Hida* fails to expressly or inherently describe an alignment mark which consists of two lines that extend in parallel with one edge of the liquid crystal encapsulation opening as recited in claim 7. Thus it is respectfully submitted that claim 7 is allowable. Withdrawal of the rejection is solicited.

Claim Rejections - 35 USC § 103

The Examiner rejected claims 1, 3, 4, 6, 10, and 11 under 35 USC § 103 as obvious from *Hida* in view of *Lee* (US 6,844,911 B2). This rejection is respectfully traversed.

Claims 1 and 10

With respect to independent claims 1 and 10, the cited references fail to show the elements “forming a seal pattern on the substrate marked with the specified figure, forming a seal pattern further comprising: detecting the specified figure, determining a start point and an end point in relationship to the specified figure, and applying sealing material from the start point to the end point according to a predetermined pattern, wherein the predetermined pattern provides a liquid crystal encapsulation opening in the vicinity of the specified figure”. Because these elements are not found in either *Hida* or *Lee*, the rejection is not well founded and should be withdrawn.

Hida describes (col. 3, lines 28-42) a process for fabricating a liquid crystal display device including a step of “disposing a sealing member on said first or second substrates so as to surround said display region while forming one or more opening regions for injecting a liquid crystal material”. *Hida* also describes, throughout the description of the preferred embodiments, steps of recognizing alignment marks disposed the first and second substrates and using the marks to align the substrates during assembly of the liquid crystal display device. However, the steps of recognizing and using the alignment marks occur after the seal member has been disposed on one of the substrates. *Hida* does not teach or suggest that the alignment marks may be used to control the deposition of the seal member as recited in claim.

In the rationale for the rejection of claims 1, 4, and 10, the Examiner acknowledges that *Hida* fails to explicitly state “the sealing material applied to the first substrate to have a start and end point at predetermined positions with respect to a specified figure”. While this statement appears correct, it is also irrelevant to the rejection of claim 1, since claim 1 does not include such a limitation.

Claim 1 recites a seal deposition process in which a specified figure is detected, and start and stop points are determined in relationship to the detected specified figure. The seal material is then applied from the start point to the stop point in a predetermined pattern. Such a process is not disclosed or suggested by *Hida*.

Lee, which was cited only for teaching cutting the joined substrates, does not remedy the deficiencies of *Hida*. *Lee*'s description of the process for forming a seal pattern (col. 2, lines 54-65) merely states that "a screen print method using a screen mask and a dispenser method using a dispenser are used for the seal patterning process". *Lee* does not teach or suggest that the alignment marks may be used to control the deposition of the seal member.

Since *Hida* and *Lee*, individually or in combination, fail to teach or suggest at least three elements of independent claim 1, it is respectfully submitted that claim 1 is allowable. Withdrawal of the rejection is solicited.

Claim 4

In the Office action, a common rationale is provided for the rejection of claims 1 and 4. However, independent claim 4 includes the elements "detecting the positions of the specified figure and the liquid crystal encapsulation opening" and "selecting a pair of substrates where the seal material is normally applied, the selecting based on the position of the liquid crystal encapsulation opening with respect to the specified figure". Because these elements are not found in either *Hida* or *Lee*, the rejection is not well founded and should be withdrawn.

Further, because these elements are not even mentioned in the Office action, the Office action fails to comply with 37 CFR 1.104(c)(2) which states:

In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a

reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

Specifically, the Office action fails to designate the particular part relied on to teach or suggest the elements “detecting the positions of ... the liquid crystal encapsulation opening” and “selecting a pair of substrates where the seal material is normally applied, the selecting based on the position of the liquid crystal encapsulation opening with respect to the specified figure”. A new non-final Office action is necessary here.

Hida describes, throughout the specification, methods for recognizing alignment marks disposed on first and second substrates and using the marks to align the substrates during assembly of the liquid crystal display device. However, in contrast to claim 4, *Hida* does not teach or suggest that an alignment mark (specified figure) and the liquid crystal encapsulation opening are detected after the display device is assembled, or that the relative position of the alignment mark and the encapsulation opening may be used to select pairs of substrates for further processing. *Hida* appears to be silent on methods to inspect the deposition of the seal pattern and the position of the encapsulation opening.

Lee, which was cited only for teaching cutting the joined substrates, does not remedy the deficiencies of *Hida*. *Lee* also appears to be silent on methods to inspect the deposition of the seal pattern and the position of the encapsulation opening.

Since *Hida* and *Lee*, individually or in combination, fail to teach or suggest at least two elements of independent claim 4, it is respectfully submitted that claim 4 is allowable. Withdrawal of the rejection is solicited.

Claims 3, 6, and 11

It is respectfully submitted that claims 3, 6, and 11 are allowable by virtue of depending from respective allowable base claims. It is further submitted the claims 3, 6, and 11 are allowable because *Hida* and *Lee*, individually or in combination, do not teach or suggest the element “the specified figure consists of two lines that extend in parallel with one edge of the liquid crystal encapsulation opening, and are arranged between both ends of the sealing material”.

As previously discussed with respect to the rejection of claim 7, the term “consists of” excludes alignment marks having any features or structure in addition to the recited parallel lines. Neither *Hida* or *Lee* teach or suggest an alignment mark that consists of two parallel lines. To the contrary, *Hida* specifically describes a pair of complex alignment marks suitable for precise alignment of substrates on two axes. Since *Hida* and *Lee*, individually or in combination, do not teach or suggest at least one element of claims 3, 6, and 11, the rejection is inappropriate. Withdrawal of the rejection is solicited.

Conclusion

It is submitted that the independent and dependent claims include other significant and substantial recitations which are not disclosed in the cited references. Thus, the claims are also patentable for additional reasons. However, for economy the additional grounds for patentability are not set forth here.

The Examiner’s consideration of the references of record is appreciated. It is presumed that the Examiner has considered the entire disclosure of each of the references of record with respect to anticipation (individually) and obviousness (in any combination).

In view of all of the above, it is respectfully submitted that the present application is now in condition for allowance. Reconsideration and reexamination are respectfully requested and allowance at an early date is solicited.

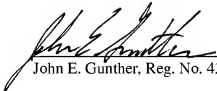
The Examiner is invited to call the undersigned registered practitioner to answer any questions or to discuss steps necessary for placing the application in condition for allowance.

References to "Applicant" herein are to the assignee of record, which the undersigned represents. An assignment has been recorded, and a Statement of Ownership and a General Power of Attorney have also been filed. Thus, the rights of the original Applicants/inventors have been excluded.

With respect to this filing, the Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 503456. Please consider this paper to be a petition for extension of time, if necessary.

Respectfully submitted,

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